Name:

SM2H

Period:

SM2H 3.6 Solving Quadratic Equations by Using the Square Root Principle

Simplify. Write your answers in simplest radical form.1. $\sqrt{50}$ 2. $13\sqrt{8}$ 3. $\sqrt{-45}$ 4. $\sqrt{-72}$

Find all solutions (real and imaginary) to each equation by taking square roots. Write all answers in <u>simplest radical form</u> and write complex answers in the form a + bi.

5.
$$a^2 = 4$$
 6. $b^2 = 24$

7.
$$c^2 = -49$$
 8. $4d^2 = 36$

9.
$$h^2 + 7 = -4$$
 10. $6k^2 - 3 = -15$

11. $(m+4)^2 = 100$ 12. $m^2 + 4 = 100$

13. $2(p+3)^2 = 8$ 14. $9(r+2)^2 = 180$

15.
$$6(t-4)^2 = -72$$

16. $2(v-2)^2 + 4 = 100$

17.
$$3(w-1)^2 - 6 = -33$$
 18. $-9\left(z + \frac{1}{3}\right)^2 = 4$

19.
$$0 = 3x^2 - 54$$
 20. $-25 = \frac{1}{4}x^2$

21.
$$\left(y + \frac{1}{6}\right)^2 = 12$$
 22. $2\left(x - 4\right)^2 = 0$

23. $3(x+2)^2 = 6$ 24. $5(x-8)^2 = 0$

25.
$$4(x+9)^2 - 72 = 0$$

26. $0 = -2(x+3)^2 - 8$

27.
$$-\frac{2}{5}(x-8)^2 + 40 = 0$$
 28. $0 = \frac{1}{2}(x-3)^2 - 18$

29. Explain why you must use the " \pm " sign when solving an equation by taking square roots.

30. A rock is thrown upward off the top of a cliff. It's height in feet after *t* seconds is given by the formula $h(t) = -16t^2 + 80$.

a. What is the height of the cliff? (In other words, how high is the rock at t = 0?)

b. How high is the rock after 3 seconds?

c. How long does it take for the rock to hit the ground? (hint: when the rock hits the ground the height will be 0 so h(t)=0)

Fill in all requested information for each function. Write domain and range in interval notation and end behaviors in limit notation.

